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*Case Report*

# Tubo-Ovarian Abscess Presenting as Pneumoperitoneum

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***Background*:** Tubo-ovarian abscess (TOA), a serious complication of pelvic inflammatory disease, often require the antibiotic administration, surgical resection or the transvaginal aspiration. Pneumoperitoneum is often associated with the bowel perforation. We reported one case with TOA and pneumoperitoneum that have been mistaken for a perforated bowel with concomitant adnexal mass.

***Case*:** A 30-year-old diabetic Chinese woman was transferred for diffused abdominal pain, mild fever, nausea, and low-grade fever for 5 days. The sonography revealed a 5-cm adnexal mass. The chest X-rays revealed the pneumoperitoneum. Under the impression of bowel perforation and concomitant adnexal cyst, the emergent laparotomy was performed and the TOA was resected. No evidence of gastrointestinal perforation was present. Culture studies showed *Escherichia coli* without other bacteria flora. The postoperative course was uneventful.

***Conclusion*:** We concluded that, beside the bowel perforation, TOA should be considered when a diabetic woman presents with pneumoperitoneum and adnexal mass.

**KEY WORDS:** Diabetes; *E. coli*; pneumoperitoneum; tubo-ovarian abscess.

## INTRODUCTION

Tubo-ovarian abscess (TOA), a serious complication of pelvic inflammatory disease, often require antibiotic administration, surgical resection, or transvaginal aspiration. Pneumoperitoneum is often associated with bowel perforation. Reviewing the MEDLINE database, only one report indicated the gas collection within the cyst content of TOA (1). There was no report about the individual with TOA and pneumoperitoneum that have been mistaken for a perforated bowel with concomitant adnexal mass. This is a first reported case in this aspect.

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## CASE

A 30-year-old obese Chinese woman was transferred for diffused abdominal pain, fever, nausea, and vomiting for 5 days. She visited several local clinicals and received antibiotic (ampicillin) without symptom improvement. Her history included recurrent pelvic inflammation disease and diabetes without regular medical control. Physical examination indicated abdominal tenderness, rebounding pain, and lifting pain. Vaginal sonography presented a 6-cm adnexal mass with a complex content. The X-rays of chest revealed free air in the bilateral subdiaphragmatic area (Fig. 1). Computer tomography indicated gas in the subphrenic area, Morrison pouch, and pelvis (Fig. 2). The serum data revealed leukocytosis (white count: 14,100/$\mu$L, 88% neutrophils).

Under the impression of bowel perforation and concomitant adnexal cyst, an exploratory laparotomy was performed. A TOA with dense adhesions to the pelvic sidewall was found. Total

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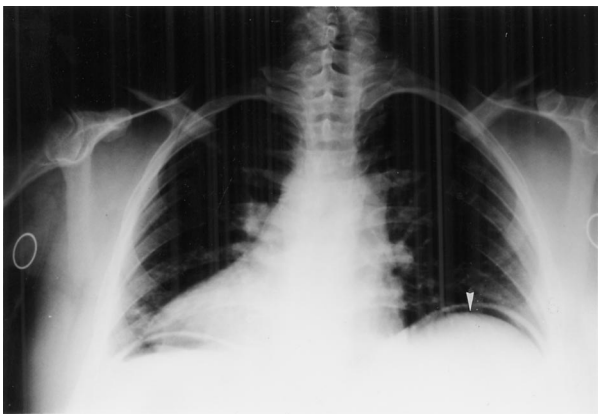

**Fig. 1.** Plain film of chest showed the free air in the bilateral subdiaphragmatic area (arrow head).

salpingo-oophorectomy was performed. There was purulent fluid throughout the abdominal cavity combined with dense fibrous adhesions and inflammatory exudates between the rectosigmoid, uterus, and fallopian tubes. The appendix, colon, intestine, and stomach were intact. No bowel fistula, perforation, appendicitis, and diverticulitis were seen.

Microbiologic studies of the peritoneal fluid revealed the infection of Escherichia coli. The vaginal, blood, and urine cultures were unremarkable. The pathologic examination confirmed the TOA. She accepted combined antibiotic therapy, including cephalocilin (1 g every 6 h), gentamycin (80 mg every 8 h), and cleocin (300 mg every 6 h). The postoperative course was uneventful.


**Fig. 2.** Computed tomography showed free air in the subphrenic area (arrow head).

## DISCUSSION

TOA, a life-threatening disease, is polymicrobial in nature. Common agents for TOA include Neisseria gonorrhea and Chlamydia trachomatis. Other enterobacteriaceae such as *E. coli* are often isolated from individuals with TOA (2). Diabetes, a common multisystemic disease, is related with TOA and gas-forming abscesses such as emphysematous pyelonephritis and emphysematous cystitis (3). In this case, we observed that *E. coli* infection in the diabetic individuals may result in the gas formation.

Pneumoperitoneum is usually seen after bowel perforations and surgical procedures. Nonsurgical pneumoperitoneum has been encountered in numerous statuses, including blunt trauma (4), sexual activity (5), ruptured pyometra (6), mechanical ventilation, cardiopulmonary resuscitation, pneumothorax, and gastrointestinal endoscopic procedures. From this report, we demonstrated that TOA is an another possible reason, which may produce the emphysematous lesion within the peritoneum cavity. Furthermore, although only *E. coli* has been cultured, other uncultured agent may also have contributed to the gas formation.

In conclusion, the microbiologic infection from the TOA of the diabetic individual may produce the gas within the peritoneum cavity. Despite the rarity, in front of a diabetic woman with pneumoperitoneum and adnexal mass, the TOA as well as the bowel perforation should be considered.

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